

Pleasants Valley Road Bridge (Bridge 23C-98)
Pleasants Valley Road spanning Pleasants Valley Creek
Vacaville vicinity
Solano County
California

HAER No. CA-194

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PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
San Francisco, California

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HISTORIC AMERICAN ENGINEERING RECORD
PLEASANTS VALLEY ROAD BRIDGE (BRIDGE NO. 23C-98)
HAER No. CA-194

Location: Pleasants Valley Road spanning Pleasants Creek
Approx. 4 miles southwest of Winters, 6 miles north of Vacaville, 1 ½ miles
south of State Route 128, Solano County, adjacent to Yolo County, California

U.S.G.S. 7.5 minute Mt. Vaca quadrangle
Universal Transverse Mercator coordinates: N 4258660
E 584710

Date of Construction: 1917

Engineer: E.N. Eager, Solano County Surveyor

Builder: C.H. Gildersleeve, Napa County, California

Present Owner: California Department of Transportation
1120 N Street
Sacramento, CA 95814

Present Use: Vehicular Bridge
To be demolished in 1998

Significance: The Pleasants Valley Road Bridge is a good example of early reinforced
concrete bridge construction. It has a closed spandrel concrete arch,
exemplifying concrete bridge construction in rural California, especially with
spans less than 100 ft. Although typical for its time, few such bridges remain
in Solano County. The bridge was determined potentially eligible for the
National Register of Historic Places in 1984, with concurrence from the State
Office of Historic Preservation.

Report Prepared By: Rebecca Allen, Ph.D.
Historic Resources Group Leader
KEA Environmental, Inc.
601 University Ave., Suite 185
Sacramento, California 95825

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I. DESCRIPTION

The Pleasants Valley Road Bridge is a closed-spandrel, earth-filled, reinforced concrete arch structure with a main span of 50 ft. (15.2 m) and a total bridge length of 66 ft. (20.1 m). As shown in **Photograph 1**, the bridge has two narrow driving lanes, and is about 21 ft. (6.4 m) wide. Essentially a plain concrete closed spandrel arch (**Photograph 2**) 50 ft. (15.2m) long with a 17 ft. 7 in. (5.4 m) rise, the bridge is outlined by a curved concrete extruded arch form. Solid concrete barrier railings 4 ft. 9 in. (1.4 m) high topped with a concrete slab, are defined by tall solid concrete posts at the abutments. Smaller posts placed at regular 3 ft. (.9 m) intervals across the bridge length. These posts provide decorative elements on the bridge deck (**Photographs 3-9**). Recessed panels provide further decorative details, and are placed in the walls between the posts, as well as in the primary and secondary posts (**Photographs 10 and 12**). A bridge dedication panel identifying the engineer and the contractor is placed in the northeast abutment post (**Photograph 11**). Engineering drawings of the bridge (**attached**) illustrate detailed construction methods and measurements.

II. ARCHITECTURAL AND ENGINEERING INFORMATION

E.N. Eager, Solano County Surveyor, provided the design for the Pleasants Valley Bridge. C.H. Gildersleeve, a Napa County contractor, constructed the bridge in 1917 based on Eager's design.

According to Gregory's (1912) history of Solano County, C.H. Gildersleeve was a prominent local cement contractor with headquarters in Napa. Gregory especially noted his work in constructing bridges. Gildersleeve constructed concrete bridges in Lake, Calaveras, and Solano counties which were especially noted for their "fine appearance." Although prolific at the time, few of Gildersleeve's bridges remain in Solano County.

Concrete bridge construction technology dates to the late 1880s, although few such structures were built prior to 1900. The use of concrete allowed for simpler forms than earlier metal truss bridges, although the combination of materials, concrete and steel, was a more complex construction (Mikesell 1990:76). Closed spandrel arch bridges were the earliest form, and were popular until the 1920s, when open spandrel arch design rapidly replaced their closed counterpart designs.

Mikesell (1990:78) briefly describes the construction method of the closed spandrel arch:

...the closed spandrel arch includes a solid barrel form of rigid material -- the arch itself-- with vertical side walls, or spandrel walls. The cavity created by the arch and spandrel walls is filled with whatever material is available, usually dirt, and the driving surface tops this fills. The closed spandrel arch was sometimes executed in plain, or unreinforced, concrete... Most such bridges, however, used reinforcing metal bars embedded in the arch and sometimes in the spandrel walls. The filled arch was constructed in California until the start of World War I....

Concrete bridge construction in California became very popular in California after the San Francisco earthquake of 1906 (Mikesell 1996:3). Closed spandrel arches were especially popular in rural areas in California, as they were well suited to spans less than 100 ft. The Pleasants Valley Road Bridge is very typical in its construction method and is within a typical length -- the bridge has an overall length of 66 ft.

The bridge retains good integrity. It appears to be almost completely unaltered from its original appearance (**Photographs 3, 4, 12, and 13**). Only minor spalling and cracking has affected the concrete railing. The arch barrel, spandrel walls, and abutments are completely unmodified. A small water pipe was hung from the west side of the bridge, but can be considered only a minor alteration to the bridge's appearance (**Photograph 6**). The piping appears to have been installed in the circa 1940s. Swallow nests currently occur on the bridge's elevation and underside of the arch barrel, but present no threat to overall integrity (**Photographs 7-8**).

In addition, Solano County engineers have noted that erosion is occurring along the wingwalls of the bridge, due to roadway water runoff (**Photograph 3**). Scour marks have been noted on the bridge footings as the channel under the bridge is constricted (**Photograph 8**). Debris buildup under and around the bridge during times of high water flows has made the situation more problematical. As the Pleasants Valley Road Bridge is narrow, motorists have struck the bridge several times, causing some damage.

III. HISTORICAL INFORMATION

The Pleasants Valley Bridge is located in an area known as Pleasants Valley. This valley was originally part of the Rancho Los Putos, granted to two Spaniards from the New Mexico area in 1842. When California became part of the United States in 1849, many Mexican land grants were challenged. Named after a local Indian chief, Solano County was established in 1850, one of the original 27 counties of California (Beck and Haase 1974). Rancho Los Putos was patented in 1858 within the boundaries of Solano County, but much smaller than its original size. The Rancho was first divided into four large cattle ranches in the late 1850s, and was further segmented throughout the 1870s.

J.M. Pleasants was the second settler in the area named after him. He found Pleasants Valley to have fertile grounds, and beginning in 1852 planted apricots, apples, and pears. Orchards began to dominate Pleasants Valley, and nearby Vaca and Lagoon Valleys in the mid-1850s, establishing a trend that would continue throughout the 19th century. Typical fruit trees in these orchards included peach, plum, cherries, almonds, prunes, and walnuts. Other common land uses in the area were cattle grazing, vineyards, vegetable plots, and hay fields (Gregory 1912). Pleasants Valley was a rural landscape throughout the 19th century, and has maintained this appearance to the present day.

Local transportation systems connected Pleasants Valley with the nearby towns of Vacaville in Solano County, and Winters in Yolo County. Vacaville was established in 1850, within a square mile broken off from the original Rancho Los Puntos land grant (Kyle 1990). Vacaville residents and residents from the surrounding countryside shipped produce to Sacramento, and the road system that grew out of this transport of goods remains a major thoroughfare of California (present-day Highway 80). The town of Winters, just north of the Pleasants Valley Bridge, was laid out 25 years later than Vacaville.

Established as a railroad town by the developers of the Vaca Valley Railroad, the town also became central to the transport of goods from the area, but never grew as large as Vacaville (Kyle 1990).

Very early in the history of the orchard industry in the Pleasants Valley area, there was a good market for produce in San Francisco. Early in the state's history, a Solano County orchard grower would transport produce directly to local mines "where he found ready sale of the product at fancy prices" (Gregory 1912:125). Orchard growers needed a ready method of getting their produce to these outlets.

Roads constructed through the rural landscape of Pleasants Valley allowed local farmers and cattle grazers to transport their goods to the nearby town centers. Formal construction of road systems in Solano County began in the 1860s. Earlier road systems existed on which orchard growers transported their goods via farm-horse wagons. Farmers transported produce to Vacaville, Winters, and San Francisco. Vacaville especially was an important transport hub, and produce from there went as far as the eastern coast of the United States. As a result of the "unexcelled" transport system, local vineyard owners shipped a carload of fine grapes from Pleasants Valley to Philadelphia in 1876 for display at the Centennial Exposition (Gregory 1912:126).

Private companies and individuals frequently constructed the first roads and bridges in California.

These road systems were patchwork at best, and generally developed in direct response to local community needs. The State Legislature adopted a transportation program in 1874 that enabled counties to formally establish road districts and commissioners, as well as earmark part of local property taxes for road construction. A State law passed in 1893 mandated each count to seek the advice of the county surveyor for the construction of bridges. Most local county governments in California designed their own bridges by around 1910. Counties generally relied on their own in-house surveyors, engineers, and other staff (Mikesell 1990).

Solano County continued to improve local road systems throughout the 19th century. Many rural as well as more urban roads were constructed. By the second decade of the 20th century, many concrete bridges were built in the rural Solano County landscape (Gregory 1912). The Pleasants Valley Road Bridge was constructed during this time. Like several other bridges in the area, C.H. Gildersleeve, a contractor from nearby Napa County, built the structure. The County Surveyor at the time was E.N. Eager. According to State law, Eager had to be consulted prior to construction of the bridge. Little information is known about Eager. He is not mentioned in Gregory's 1912

history of the area. It is likely that Eager relied on Gildersleeve's better-known expertise in bridge construction.

Gildersleeve typifies a rural bridge builder in California. He apparently specialized in building small concrete bridges in Napa and Solano Counties. According to Mikesell (1990:11), this type of interaction with a local builder "contractor" and county surveyor or other local official was fairly common in the first two decades of the 20th century. Although once a common sight in the area, few examples of Gildersleeve's concrete closed spandrel bridges remain in Solano County today. The Pleasants Valley Road Bridge is fairly typical for its construction design. During the 1910s, the transition from metal truss bridges to concrete bridge was essentially complete. As noted above, the earliest of these bridges were of closed spandrel design.

Today much of the lands that surround the Pleasants Valley Road Bridge are used for residential purposes rather than agriculture. The area retains a rural feeling, however, as there are nearby fields and orchards. As the Pleasants Valley Road Bridge is almost completely unaltered from its original appearance, it currently contributes to the overall rural setting of the area.

IV. SOURCES

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Gregory, Tom. *History of Solano and Napa Counties, California*. Los Angeles: Historic Record Company, 1912.

Kyle, Douglas E. *Historic Spots In California*. 4th edition. Stanford: Stanford University Press, 1990.

Marvin, Judith. Historic Property Survey Report for the Pleasants Valley Road Bridge Replacement Project Over Pleasants Creek (#23C-098) Solano County, California. Caltrans District 04, Project No. 94013. Document prepared for Hughes Environmental Consulting, Sacramento, 1996.

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V. PROJECT INFORMATION

This documentation was prepared for the Solano County Transportation Department. The County and the Federal Highway Administration (FHWA) propose to replace the Pleasants Valley Road Bridge with a post-tensioned concrete box girder bridge, constructed east of the current alignment. The existing bridge will be demolished when the new bridge has been completed.

An Historic Property Survey Report (HPSR) was completed in January 1996 (Marvin 1996). The HPSR determined that the Pleasants Valley Road Bridge appeared to be eligible for the National Register of Historic Places, based on criterion c, as a good example of its type, period, and method of construction. Good physical integrity of the bridge supported its candidacy for eligibility. Subsequently, a Finding of Effect (FOE) document determined that demolition of the bridge will be an adverse effect on a potentially eligible historic resource (Mikesell 1996). The present HAER documentation was recommended as a mitigation for this adverse effect.

Steve Heipel served as the KEA Environmental, Inc. Project Manager. Rebecca Allen, Ph.D., also of KEA, was Principal Investigator. Robert Hicks of Field Documentation Services of Rancho Cordova was the photographer. The current documentation was based on previous investigations conducted by Stephen D. Mikesell of JRP Historical Consulting Services and Judith Marvin of Foothill Resources Ltd.